Introduction to the SBRP

The NIEHS's SBRP was created under the Superfund Amendments and Reauthorization Act (SARA) of 1986. The major provisions of the statute called for a university-based basic research program that sought the development and advancement of:

- Methods and technologies to detect hazardous substances in the environment
- Techniques for detection, assessment, and evaluation of the effects on human health of hazardous substances
- Methods to assess the risks to human health by hazardous substances
- Basic biological, chemical and physical methods to reduce the amount and toxicity of hazardous substances

In response to the SARA legislation, the NIEHS undertook the development of a research program that encompasses the broad mandates outlined in the statute. The Program seeks to fund research that complements the interest and activities of the Superfund programs in the US EPA and the ATSDR. The SBRP considers appropriate areas of study to include biomedical, ecology, epidemiology, toxicology, molecular biology, hydrogeology, engineering and soil science. Over its 20-year history, the SBRP has developed a unique program for the support of basic environmental health research that addresses the science issues posed by abandoned and uncontrolled hazardous waste sites around the country.

The SBRP uses three different grant mechanisms to support the Program's research: (1) university-based Multi-project Grants, (2) university-based Individual Research Project Grants and (3) Small Business Innovation Research (SBIR) and Small Business Technology Transfer Research (STTR) grants.

The Multi-project Grant program (P42) has been the mainstay of SBRP since the first awards were made 1987. These grants enable teams of scientists from different disciplines to address complex hazardous waste problems from multiple perspectives. The objective of using this grant mechanism is to establish and maintain a unique program that links and integrates biomedical research with related non-biomedical components. The philosophical basis for creating such an integrated program is the realization that environmental health research, as it pertains to issues confronting hazardous wastes, follows three interconnected pathways from exposure and fate and transport of substances in the environment to its effects on the environment, ecosystems and human health and that a holistic approach would better serve to understand these relationships in order to make more informed decisions. In addition, through this grant mechanism, SBRP also has been proactive in developing outreach, training, and technology transfer initiatives.

The Individual Research Project Grants (R01) were initiated with the funding of pilot grants in 2006 and, subsequently, two Requests for Applications (RFAs) have been released. Funding is for discrete, single projects focused to meet high-priority research needs of the national Superfund Program or tackle issues of emerging concern. The first RFA encouraged research to develop innovative approaches to address the remediation of contaminated sediments, with particular emphasis on in situ remedies. The second was to enhance our understanding of the basic structural and functional properties of microbial populations that are involved in the remediation/sequestration of hazardous substances by integrating or adapting innovative nanotechnology-based tools for sensing, detecting, and elucidating processes at the molecular and nano-scale.

SBRP's SBIR and STTR (R43, R44 / R41,R42) grant program was established to foster the application and commercialization of innovative monitoring and remediation technologies. Grant opportunities are announced via the NIH Omnibus solicitation tri-annually. SBRP provides Phase I and Phase II funding to small companies applying biotechnology and bioengineering approaches for the development of novel strategies that can be used to characterize and monitor contaminants at waste sites, and to reduce exposure via remediation technologies. SBRP also supports Phase I and Phase II research to improve monitoring capabilities to assess and characterize the extent and amount of contaminants present at sites, as well as to monitor the effectiveness of remediation technology in reducing the amount and toxicity of contaminants.

While founded on the premise that basic research was needed to provide the scientific underpinning for understanding, prioritizing and addressing environmental and health issues, the NIEHS leadership also recognized that the research program could not be solely of academic interest. It must be responsive to the objectives and needs of its governmental partners (US EPA and ATSDR), to have real-world orientation with relevance to the nation's environmental contamination issues and to work towards finding practical applications to its basic research findings. To accelerate the attainment of these goals, the SBRP has been supportive of numerous research translation activities by: 1) providing seed funds to promising innovative technologies; 2 encouraging the Multi-project Grantees to develop outreach and educational activities directed to communities affected by hazardous waste sites; 3) being supportive of grantees working at hazardous waste sites; and 4) requiring each Multi-project Grant to include a Research Translation Core to ensure that all research advances are being optimized.

In summary, the totality of activities undertaken by the SBRP and it s grantees ultimately supports our research, outreach and training mission which includes:

- Protecting human health and the ecosystem

- Reducing the uncertainty in determining environmental health risks
- Improving cleanup strategies and developing alternative remediation technologies
- Developing innovative detection and monitoring devices
- Contributing to the elucidation of environmental exposure and disease relationships
- Conducting research translation and community engagement
- Fostering multi/interdisciplinary training of the next generation of investigators